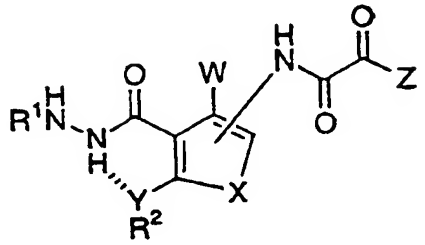
CLAIMS

1. A composition have the general formula :



wherein,

R^1 = H, acyl or alkyl or aryl with up to 20 carbon atoms, which may be straight or branched, cyclic or acyclic, chiral or achiral, or an amino acid or peptide;

R^2 = H, alkyl or aryl with up to 20 carbon atoms, which may be straight or branched, cyclic or acyclic, chiral or achiral;

W = H, F or the NH-CO-CO-Z group shown,

X = O, S, NR^3, CR^4=N, N=CR^4, CR^4 =CR^5;

R^3 is H, acyl or alkyl or aryl with up to 20 carbon atoms, which may be straight or branched, cyclic or acyclic, chiral or achiral;

R^4 and R^5 are each selected from H, alkyl, halogen, nitro, carboxyl, amino, alkyl or aryl sulfone, alkyl or aryl sulfoxide, sulfonic acid, sulfonate salt or sulfonamide, and wherein R^4 and R^5 may be combined to form a ring structure;

Y = O, S, or YR^2 as a group may be a halogen;

Z = OR^6 or NR^7R^8, wherein R^6, R^7 and R^8 are each selected from H, acyl, alkyl or aryl with up to 20 carbon atoms, which may be straight or

amino acid or peptide

2. A peptide incorporating composition according to Claim 1.

3. A peptide incorporating composition according to Claim 1, wherein the composition induces the peptide to fold into β-sheets.

4. A protein incorporating a composition according to Claim 1.

5. A peptidomimetic compound incorporating a composition according to Claim 1.

6. A composition according to Claim 1 combined with an agent to cause that agent to mimic β-strands.

7. A compound according to Claim 1 combined with an agent to cause that agent to block β-sheet dimerization of proteins.

8. A compound according to Claim 1 combined with an agent to cause that agent to block protein-protein β-sheet interactions.

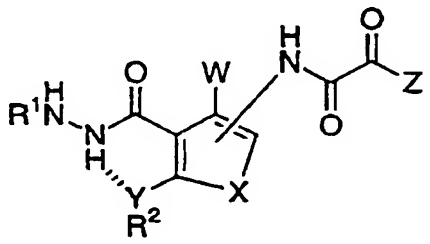
9. A compound according to Claim 1 combined with an agent to cause that agent to interact with a protein by β-sheet formation.

10. A tripeptide compound according to Claim 1 comprising *i*-PrCO-Phe-Hao-Val-NHBu.

11. A preparation comprising a composition according to Claim 1 in a pharmaceutically acceptable carrier.

12. A method of causing dimerization of a compound that is capable of dimerizing due to β-sheet interactions, said method comprising the step of:

combining the compound with a chemical entity having the general formula:



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Y = O, S, or YR^2 as a group may be a halogen;

Z = OR^6 or NR^7R^8, wherein R^6, R^7 and R^8 are each selected from H, acyl, alkyl or aryl with up to

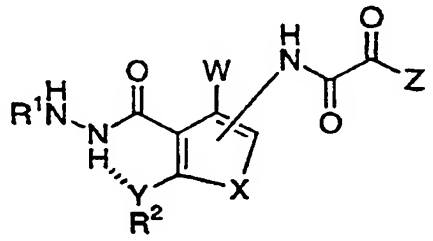
branched, cyclic or acyclic, chiral or achiral, or an amino acid or peptide.

13. A method according to Claim 9 wherein the compound is a peptide.

14. A method according to Claim 9 wherein the compound is a protein.

15. A method according to Claim 9 wherein the compound is a peptidomimetic compound.

16. A method of treating a disease or disorder in a human or animal patient, said method comprising the step of administering to the patient a therapeutically effective amount of a compound having the formula:



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or a pharmaceutically acceptable salt thereof.

17. A method according to Claim 13 wherein the disease or disorder being treated is a cancer and the compound mimics a β-sheet which binds with a Ras oncoprotein.

18. A method according to Claim 13 wherein the disease or disorder being treated is cancer and the compound mimics a β-sheet which binds to the Ras-binding domain of serine/kinase c-Raf1 (Raf).

19. A method according to Claim 13 wherein the disease or disorder being treated is a neurodegenerative disease wherein proteins form oligomeric aggregates and wherein the compound comprises mimics a β-sheet which disrupts the formation of such oligomeric aggregates.

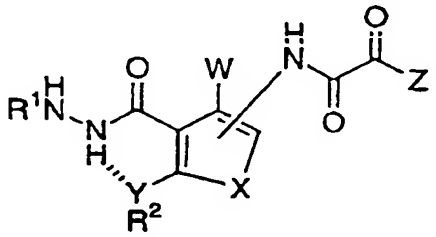
20. A method according to Claim 16 wherein the compound mimics a polyglutamine β-sheet aggregate.

[illegible] Claim 16 wherein the disease or disorder is Huntington's Disease or schizophrenia

22. A method according to Claim 13 wherein the disease or disorder is Alzheimer's Disease and wherein the compound comprises a compound that mimic β-sheet which binds to β-amaloyd aggregates and block β-amaloyd fibril growth.

23. A method for identifying compounds which participate in β-sheet interaction with a protein, the method comprises the steps of:

a) providing a protein, a test compound, and a compound which mimics β-sheets which comprise a compound having the general formula:



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R^4 and R^5 are each selected from H, alkyl, halogen, nitro, [illegible] sulfone, alkyl or aryl sulfoxide, sulfonic acid

sulfonate salt or sulfonamide, and wherein R^4 and R^5 may be combined to form a ring structure;

Y = O, S, or YR^2 as a group may be a halogen;

Z = OR^6 or NR^7R^8, wherein R^6, R^7 and R^8 are each selected from H, acyl, alkyl or aryl with up to 20 carbon atoms, which may be straight or branched, cyclic or acyclic, chiral or achiral, or an amino acid or peptide;

b) non-covalently bond the protein to the compound which mimics β-sheets which comprise a compound having the general formula A to form a complex;

c) contact the test compound with the complex; and

d) determine the dissociation of the complex.

24. A method according to Claim 23 wherein the step of non-covalently bonding the protein is performed by ii) immobilizing the protein and ii) contacting the immobilized protein with the compound which mimics β-sheets.

25. A method according to Claim 23 wherein step of contacting the test compound is performed by admixing a solution containing the test compound with a solution containing the complex.

26. A method according to Claim 23 wherein step of determining the dissociation of the complex is a quantitative determination.

27. In a peptide synthesis wherein amino acids are added sequentially to a growing peptide chain, a method of attaching one amino acid to another amino acid or peptide chain, said method comprising the steps of:

protecting group comprising Fmoc

(B) causing the amino acid to form a peptide linkage with the other amino acid or peptide chain such that the protecting group that had been attached to the amino acid in Step A is at the *N* terminus of the growing peptide chain.

28. A method according to Claim 27 further comprising the steps of:

(C) detaching said protecting group from the *N* terminus of the growing peptide chain.

29. A method according to Claim 28 further comprising the step of:

(D) attaching to the end terminus of another amino acid a protecting group comprising Fmoc*;

and,

(E) causing the amino acid of Step D to form a peptide linkage with the N terminus of the peptide chain such that the protecting group that had been attached to the amino acid in Step D is at the *N* terminus of the growing peptide chain.

30. An *N*–terminally protected amino acid having the formula:

P-AA

wherein AA is an amino acid and P is Fmoc*

31. An *N*–terminally protected peptide having the formula:

$P\text{-}(AA)_n$

wherein AA is an amino acid, P is Fmoc* and n is 2 or more.